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THE JACG NEWSLETTER

JACG

THE JERSEY ATARI COMPUTER GROUP

VOLUME 8 NUMBER 11 BBS : 201-298-0161 JANUARY 1989

FROM THE EDITOR'S DESK

This month the JACG NEWSLETTER is up to 20 pages...many thanks to our contributors, on-going, occasional, and first-time. Their contribution(s) keep OUR NEWSLETTER viable (content-wise). This is half the battle; the other half is financial viability, and this is totally dependent upon the level of membership. If your membership has lapsed, please re-instate it. If it is about to lapse, please re-new it. If you are a non-member, and see merit in the NEWSLETTER and the JACG, please join. Whether 8-Bit or 16-Bit owner, young or old, beginner or advanced user, the club has something for you; and hopefully, you will have something to contribute in return. That is, of course, not a pre-requisite, the contribution of membership alone is a substantial beginning.

STILL SEARCHING

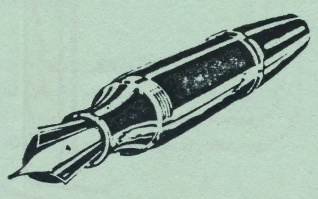
The position of editor, 'though requiring time, effort, and adherence to a deadline, is not overly onerous...if you are seriously interested, please contact me...who knows, it could be the start of a journey ending up with a Pulitzer!

Re. Advertising

Advertising in the NEWSLETTER is by no means limited to computer-related copy. Perhaps you, your company, or a friend would like to reach a discriminating, sophisticated and generous readership...consider the distinction of advertising in the JACG NEWSLETTER. Consider the write-off!

...'til next month...

D.S. Noyes



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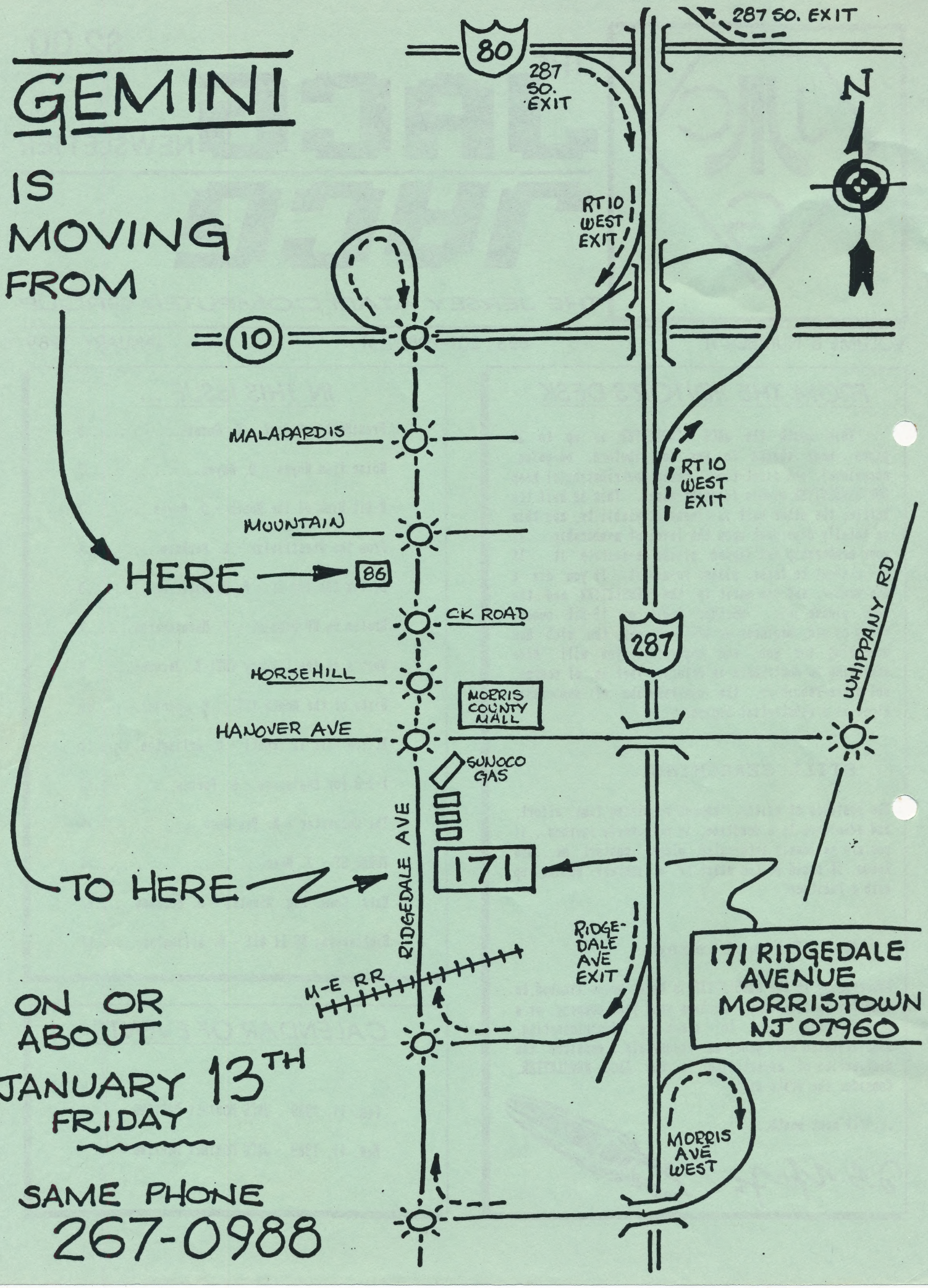
CALENDAR OF EVENTS

FEB. 11, 1989 JACG MONTHLY MEETING

MAR. 11, 1989 JACG MONTHLY MEETING

GEMINI

IS MOVING FROM



ON OR ABOUT JANUARY 13TH FRIDAY

SAME PHONE 267-0988

PRESIDENT'S REPORT

by Gary Gorski

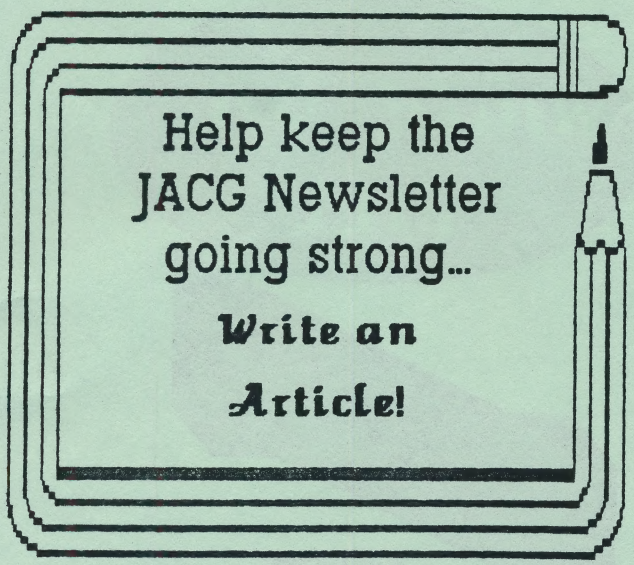
With the holiday season now behind us, and the first snow, we can get down to club business.

This month we have a very special meeting planned for you. It is the "Children's Special". I would like to thank the people that contacted the Executive committee to volunteer their children or themselves to do demos at this meeting. I'm glad to see that people still have a club spirit. I'm also looking forward to hearing from the rest of you in the upcoming months. Please pitch in to do YOUR FAIR SHARE to support our club !! We are always looking for articles for the Newsletter, and for people to do demos at the monthly meetings. If you feel that you want to make your contribution, or discuss any club related matter, please get in touch with, Dave, John, or myself. We can all be reached by phone, or on the JACG BBS: (201) 298-0161. We would love to hear any input from you, whether it be, comments, ideas, questions, or complaints. LET US HEAR YOUR VOICE, MAKE YOURSELF KNOWN !!!

Special thanks goes to Mike Hochmann for taking the time and trouble to make copies of the JACG By-laws for everyone. Please be sure to look over your copy, so we can make any necessary changes in the forthcoming months.

Also, in the next few months we have a promise of an excellent 8-bit graphic demo from former JACG President, Joseph Kennedy. As most of you know, Joe is now living in West Germany. He will be sending us that demo shortly. He guarantees us that it will be nothing short of breathtaking.

Well, until next month, "Happy New Year", and happy computing to all of you !!



NOISE FROM NOYES

by Dave Noyes

Have you seen the latest addition to the ATARI DOS world??? I mean, MYDOS 4.5 - now in the public domain. Well documented, full-featured...and, of course, the price is right. And, to think...I HAD to buy my copy of MYDOS 3.016...and that was many iterations prior to 4.5! Look for it in the club 8-Bit Disk Library - another MUST for you 8-Bitters!!!

Do you own a modem? AMODEM 7.52 is an ARC'd file in the 8 -Bit telecommunications file area on our BBS (201) 298-0161. This is MY terminal program of choice. Full-featured (boy, do I like that phrase!) and easy to use...no 8-Bit home should be without it!

Are you doing your bit as an ATARI 8-bit consumer? Don't be surprised if GEMINI ENTERPRISES is no longer at their address of long-standing. As of your reading of this Newsletter, GEMINI will no longer be there. Another fatality in ATARIDOM? No way! GEMIMI has moved to larger, more convenient quarters...please see their advertisement on the inside front cover.

DISK of the MONTH

This month the 8-bit feature is Disk # 183D. On the front side is an excellant machine language game entitled "HULK OUT". On the back, a telephone listing utility entitled "PHONE XL", or, "PHONE 800" (depending upon one's machine); and a neat little demo (as a filler) entitled "MAX HEADROOM".

The game "HULK OUT", and the demo, come to us via Dave Arlington and the Western New York Group; and the telephone listing program from the TVS BBS in Lima, Peru. Yours truly converted it to English (since I know no Spanish...it was an interesting chore!). The XL/XE version runs in TURBO*BASIC, which makes for a very fast running program...how fast? Try it with ATARI BASIC (which the 800 version runs in) and see the difference!

'til next month...

FROM THE WHEATFIELDS

by Linda Peckham

Greetings!

Well, as you may have noticed from the back of the Newsletter, I am now living in the great state of Kansas! (No more horrendous traffic jams, no more constant auto insurance crisis, no more super-expensive apartments ... <grin>) By the time you read this, I should be just about set to start classes at the University of Kansas in Lawrence, working on a Masters of Engineering from the Electrical and Computer Engineering Department. A year and a half of that, and then, hopefully, a job somewhere in the central part of the United States. Meanwhile ...

Newsletter Articles -- DTP Style

Hopefully, by the time you read this, I will have sent disks to Gary Gorski and Eric Jacoves containing the master pages for the Newsletter in Publishing Partner, Pagestream and ST Publisher formats. (And Gary will hopefully post the files on the BBS.) With more people owning desktop publishing packages and laser-quality printers for the ST, the Newsletter will look better if some guidelines are developed. What follows are some of the details I have been using in my desktop-published articles.

* ***Rule Lines*** -- The vertical line used in the Newsletter is centered at 4.25 inches, running from 0.4 to 10.4 inches vertically. (NOTE: All measurements are referenced to the Desk Jet master pages. Because the Deskjet starts to print at 0.25 inches down from the top of the page, all measurements had to be shifted upwards by that amount, compared to the settings I used originally with the Epson LQ printer.) The top horizontal line is set at 0.2 inches, and the bottom line at 10.49 inches. The thickness of the horizontal lines is 0.5 points, while the vertical line is 1 point. SUGGESTION: As long as the article is being printed out on your own printer, and sent to the editor for paste-up, I suggest that you at least add the vertical rule to the article. This makes for consistency, and gives the editor an easier time doing the paste-up.

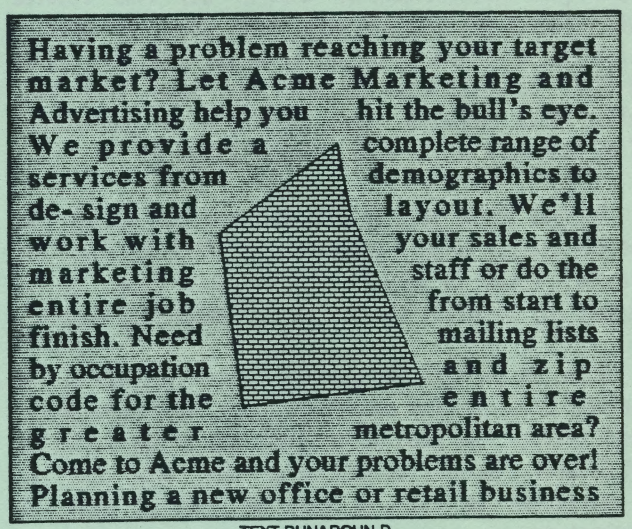
* ***Column Size*** -- The Newsletter uses two columns, with a half-inch margin between columns. The height of the columns, including any headers, is 9.75 inches. (0.5 to 10.25).

* ***Headers*** -- For short articles (one column), I have been using a rounded box 0.5 inches in height, centered above the column, with a width 0.2 inches less than the column. For larger articles, I have been using a rounded box centered above both columns (and with an opaque-white "fill", so that it covers up the vertical line), 1 inch high and 7.3 inches wide.

* ***TEXT*** -- Most guidelines on desktop publishing recommend using serif fonts for the text in an article, because such fonts tend to be more readable than non-serif fonts. (A "serif" font, such as TIMES, has the small extensions at the ends of each letter, as compared to a "sans-serif" font such as AVANT-GARDE, which does not. The "serifs" give the reader's mind extra clues as to what the letter is, making it easier to read.) I have been using AVANT-GARDE (italicized) for the titles of the articles, while using TIMES or COLUMBIA for the text. Generally, I import text at 9 or 10 points, in the justified mode. If you are using Publishing Partner, you may have some difficulty persuading the program to import at that size (instead of its default of 12 points). The key seems to be not having columns set up with the master pages, and doing 1) set the font and size, 2) create columns and 3) import text. If you can't get PP to import at the correct size, or, if you decide you need to change the text size, start with the last column of the article and work backwards.

Page Stream

Well, Page Stream is finally out, sort of. It's still rather buggy, and the fonts don't look as good on printout as the PP versions, And for some reason, it takes a horrendously long time to print the very first page of a session, though subsequent pages do print out somewhat faster than with its predecessor. (I'm currently working with the original release: there may be an update I haven't received yet.) But there are some very nifty things you can do with this package, not available in Publishing Partner. The samples below show the text-runaround, text rotation, white-text on black, and filled text.



TEXT RUNAROUN D

SLANT AND TWIST

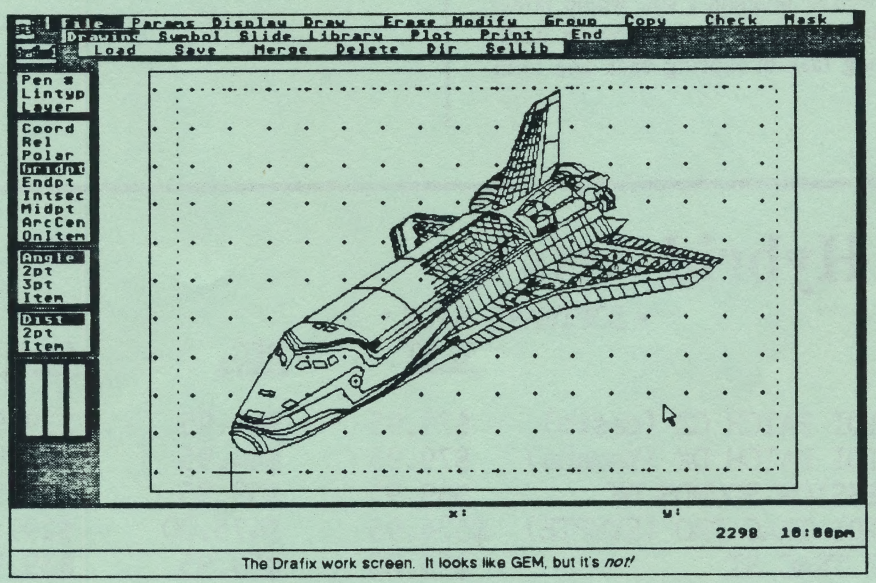
Drafix CAD for the Atari ST

Paul Machiaverna - JACG

Drafix CAD by Foresight Resources Corporation has been on the Atari ST scene for over a year now. It is one of the best CAD systems available for any microcomputer at a low price. But, what exactly is a CAD program? What is the difference between it and paint programs like DEGAS Elite? When do you need a CAD program? Why would you choose Drafix over the other CAD programs? I hope to answer these questions for you in this article.

Let's first understand what CAD programs are and how they differ from the paint programs. Paint programs such as DEGAS Elite are designed for producing artistic pictures. They concentrate on the appearance of the picture being displayed on the computer monitor. The low resolution mode of the ST allows for very good color mixing of the 16 colors allowed on the screen at a time. Other programs such as Spectrum 512 allow 512 colors on the screen at a time and enables the user to create realistic pictures full of vivid hues.

Paint programs do not use grids on the screen for reference to create scale drawings. Therefore they are not suitable for producing floorplan drawings, or any others which require precise dimensioning. When you draw any shape there is no way of having the computer report it's size. Your only guide is judging it by eye.



The Drafix work screen. It looks like GEM, but it's *not!*

Another consideration of paint programs is that the output produced on a printer is not of high quality. The resolution of the printout is depended upon the screen resolution. CAD programs, on the other hand, are specifically designed to produce high quality print output and scaled drawings. The emphasis is not placed on a drawing lookings it's best on the screen. Printer drivers are written to take advantage of the high resolution possible on hardcopies.

The typical CAD workscreen is designed to give the user guides and reference points to produce precise drawings. Such a workscreen is shown in the picture on this page. This is the Drafix workscreen. The dots are the grid points used for reference. A wealth of options are shown at the top of the screen. At the left of the screen are the drawing mode options. An XY coodinate indicator is at the botton and serves as another guide in producing precise dimentioned and scaled drawings.

Drafix gives you the power and ease to produce technical drawings and essentially replaces the old, familar drafting tables along with all the tools draftmen use. The computer is tranformed into a drafting work station. With it comes all the advantages of using a screen over paper; ease of modifying drawings, erasures are performed without leaving eraser residue on the actual drawing, libraries of commonly used symbols are kept on disk and retrieved for use in any drawing, etc.

Why should you choose Drafix over other CAD programs? That is answered by saying that it provides you with a very easy to use user interface. Looking at the Drafix workscreen, it seems that the GEM interface is used. But, actually it is a GEM like interface completely written from a line interface level. It is the same one used on the IBM version of Drafix. Everything is simple point and click to use the many functions of the program. The only times you really need to use the keyboard is to enter text on a drawing, give a filename for a save operation, or typing in specific coodinates.

Editing any drawing in Drafix is extremely easy to perform. Many options are available to the user for moving parts of drawings, copying parts to other areas of the screen, removing specific parts from a drawing, stretching and compressing of lines and shapes, etc. You can define a symbol by clicking on the parts of the drawing which you wish to save for use in any other drawing. This is where Drafix is one of the easiest of all CAD programs to use. The CAD program which has the worst editing functions is 'The Graphic Artist' by PCA.

Drafix allows you to save a drawing, or part of it, in DEGAS format. This means that you can use the CAD style functions and workscreen to create artwork for DEGAS format slide shows, or use them as clipart in desktop publishing programs such as Timework's Publisher ST or Pagestream. Keep in mind, however, that the resolution of the picture is limited by the screen.

Drafix will run on any ST configuration from a single sided floppy disk based 512K RAM 520ST to a hard disk based Mega ST4. Like any program, however, a hard disk based system can't be beat. Several disk accesses are made during a work session. Therefore, a hard drive will significantly decrease the time spent waiting for information to be loaded from disk. Floppy users will be happy to see the compact size of drawing and symbol files. The format used for these files is unique to most drawing

programs. Usually drawing files are very large in other programs.

The only real problem and annoyance with Drafix is that the supplied printer driver is extremely poor. It will only work with Epson or compatable printers and yields a resolution that of which is only as good as the one built into the ST operating system. It seems that the emphasis is on the plotter drivers which are very good. I have used a Houston Instruments Hiplot plotter which gives very good results.

But what if you want to use a printer? Then you will have to make an additional purchase of a program called DotPlotter. It will allow high resolution pictures on a variety of printers. DotPlotter has the powerful feature of allowing you to scale any drawing to any size. This is done by specifying how many pages you want the drawing to be horizontally and vertically. DotPlotter then takes on the difficult task of cutting up the drawing over the specified size. Once the pages are printed you cut and paste them together. If you want it to be a professional looking drawing it is best to have the draft copied by a printer. Although DotPlotter is a powerfull program I still would rather have the printer options available in the Drafix program itself. This would avoid the annoying task of flipping back and forth from two different programs.

Despite some quirks, Drafix is an excellent CAD program for the Atari ST. I have used the IBM version at work and it doesn't come close to the performance of the ST version. Unfortunately, the IBM and Atari ST files are not compatable. So, you can't port the drawings or symbols between the two machines without redrawing them. However, if you need a high quality CAD system the Atari ST with Drafix and a high quality printer or plotter can't be beat in it's price range. If you want more information Foresight Resources' telephone number is 1-(816)-891-1040.

Hybrid Arts

• SOFTWARE SALE •

	LIST	REG.	SALE
MIDI PATCH CZ (casio)	$79.95	$64.95	$39.95
MIDI PATCH DX (Yamaha)	$79.95	$64.95	$39.95
SESSION SOUNDS DX	$69.95	$59.95	$29.95
MIDI TRAC PRO (SYMPTE)	$574.95	$475.00	$299.95
EZ TRAC ST	$65.00	$59.95	$39.95
DX DROID ST	$244.95	$199.95	$139.95
CZ DROID ST	$99.95	$79.95	$54.95
DX EDITOR	$119.95	$99.95	$59.95
GENPATCH XE	$149.95	$119.95	$79.95
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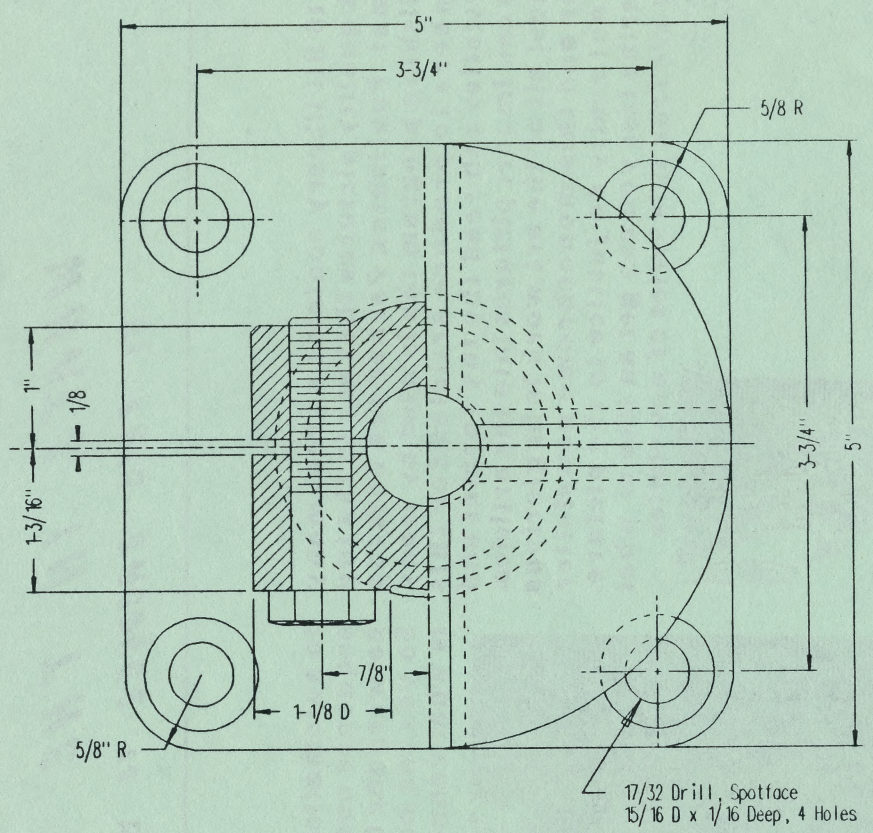
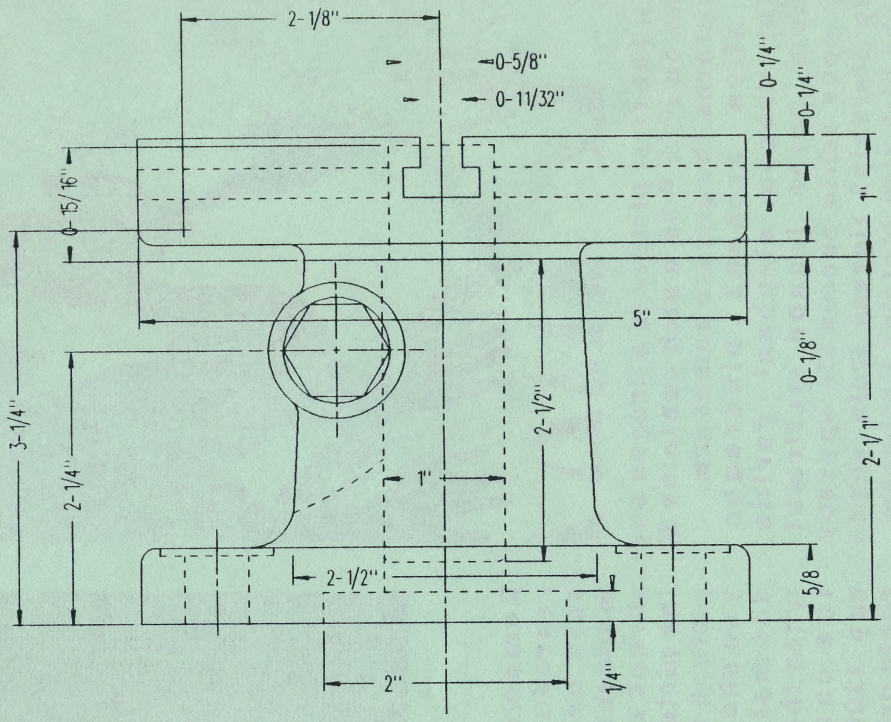




Demo Drawing of Drafix Printed on the HP DeskJet

WHATS IN THE LIBRARY

By ERIC JACOVES 16 bit librarian

The 16 Bit library contains a great many high quality pictures that are in the tny format. Publishing Parner the Desktop Publishing program tha is used by many members to produce articles for this Newsletter cah read the tny format and thus can import pictures into the articles. Almost all of the art work is in glorious color and this monochrome newsletter can not really do justice to the picture. Neverthe less you can get an idea of what they are fron this series of newsletter

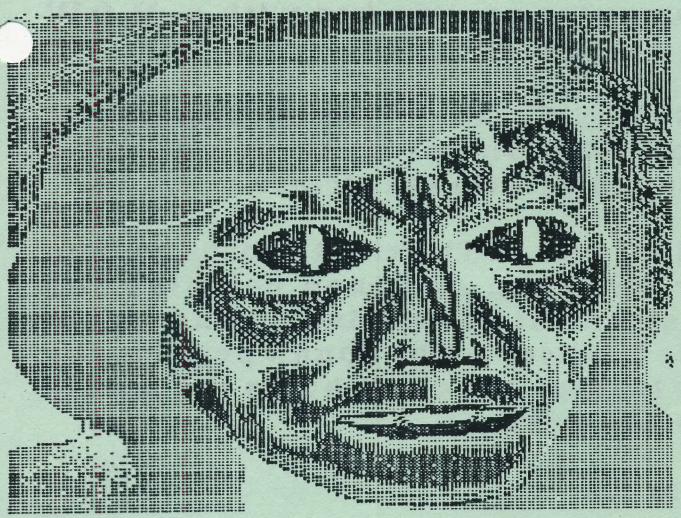
articles. The first picture is a Dragon and is found on Disk # 30 which contains 23 color pictures. the picture names are... alice alien archon2 bludragon chinafal dragon elephant gorilla headroom horse lennon masicmnt mickey opus santa spacewalk spyvspy starship starship2 tigress train vanna zztop. The disk also contains a program to automatically look at all of the pictures in sequence and a program to convert pictures between the tny...degas ...neochrome formats. So you can have your cake and eat it too. Here is what vanna looks like...

Vanna White

Remember the pictures are in color and reproduce here in shades of grey which as I said before doesn't reproduce well in monochrome. These representations are also shrunk to fit the column size and this distorts the picture. Disk Vol 30 is but one of several picture disks with many spectacular scenes. You should be able to print them all to your dot matrix printer with the alt-Help key when the picture is on the screen. If you have the cannon 1080 or the radio shack cgp-220(the same printer) color printer you could print them in color from degas elite.

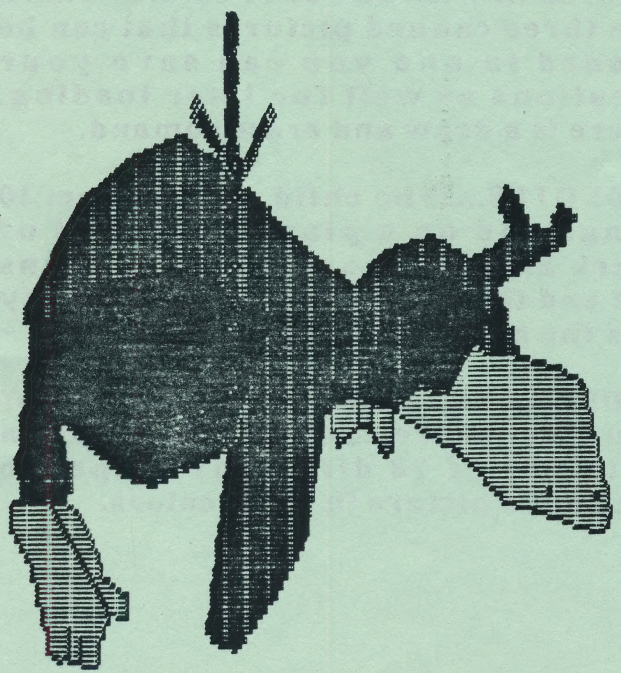
lets look at a few more of the art works on Library Disk # 30. This is SPY VS SPY

Here is the picture Tigress or a small peice of it.



The above is a piece of the picture called CHINAFAL . The dark lines are due to having to shrink the picture again to fit this column. You of course will have the full artwork and in 16 colors . These newsletter representations are to whet your appetite .

AND THIS IS OPUS.



This is the first in a series of articles detailing what is in the ST library. You may purchase any library disk for a mere $4.00 and if it is the disk of the month its only $3.00. How can you go wrong??????

SUPPORT YOUR CLUB AND GET SOMETHING OF VALUE AT THE SAME TIME

LIBRARY DISKS OF THE MONTH
YOUNG KIDS WORLD OF COMPUTING

By Eric Jacoves

This months meeting is dedicated to children and we have three disks in the JACG library that contain childerens programs.

Disk 126

Disk 127

Disk 128

The programs on these disks are varied and contain puzzles, drawing programs for the very young and music programs which give the child a piano where he or she can create music.

Disk 126 contains...

KIDGRID .....a Drawing program for young children. A large 6 by 8 cell matrix where each cell consists of 4 triangles that can be colored in with any of 6 different colors to make a picture. The child can save his or her pictures and reload them later .

KIDPUZZL.....14 puzzles exist on the disk and can be uncovered by clicking on one of several secret squares which appear as grey initially. Each time the child clicks on a secret square a part of the puzzle appears. The matrix has 258 squares so the task is not trivial.

KIDSKETCH.....The child can draw lines by clicking on one of eight arrow boxes representing the eight directions that the cursor can draw to. The line will be drawn in the given direction for as long as the child holds the mouse button down.

KIDSONG1.....The child creats a character named AIKEN DRUM by selecting his eyes, nose, mouth,hair, arms, hands, legs and feet from a group of fruits, vegtables and hamburgers or drumsticks.

POTATO..... The child dresses a potato to make a potato man thet she creates herself or she can match a creation that the computer selects.

Disk 127

KIDGRID2..... A 9 by 13 matrix of cells where each cell consists of 4 triangles. Color them in with any of 14 colors. Save and load pictures.

KIDMIXUP..... Four pictures in a scrambled sequence are presented in row 1. The child selects which picture represents the start of the sequence and what the sequence is . If wrong the computer tells the child to do it over again and if the child is right, the computer praises her.with a WOW and with music

KIDMUSIC.....Eight pictures appear, if you click on one of them you get a song to go with the picture.

KIDPIANO..... The child choses a piano or an organ and then can play the instrument by clicking on any key in the keyboard. The sound persists for as long as the child holds the mouse button down.

Disk 128

KIDGRAPH.....A 19 by 28 squares matrix appears and each square can be colored in with one of 14 colors. There are three canned pictures that can be loaded in and you can save your creations as well for later loading. There is a draw and erase comand.

KIDNOTES.....The child choses from 10 songs and on a piano keyboard of black and white keys one key turns red and the child clicks on that red key and the next etc to play a song.

KIDSHAPES.....an 8 by 10 matrix of squares where each can be filled in with one of 28 different shapes to produce a picture in eight colors.

ACTION

Part II

continued

Dave Arlington - JACG

This line would set up three CARD variables (they could hold a number from 0-65535). The first variable sum would start out with a value of zero. The second variable hiscore would initially start out with a value of 10,000 and the variable scrn would have to have it's value assigned in the statement section of your program.

Before we go on to the last way of declaring a variable, let's talk about the difference between the two following example programs.

LISTING 4:

```
PROC main()

  BYTE sum

  sum=0
  sum=sum+5
  PrintF("The sum is %U%E",sum)

RETURN
```

LISTING 5:

```
PROC main()

  BYTE sum=[0]

  sum=sum+5

  PrintF("The sum is %U%E",sum)

RETURN
```

At first glance they seem to do the exact same thing. Declare a BYTE variable called sum, initialize it to zero, add five to it, and print the results. Try this: Type them in one at a time and try the following with each example. Compile it and then hit 'R' to run it. Both come up with the same answer on the first run. However if you keep hitting 'R' to run the program without compiling it again, the two programs start to give different results. The first example gives the correct answer every time. The second example will give you 5, 10, 15, 20, etc. The reason is this: In the first example where we set sum equal to zero in the statement section of the program, that gets executed every time we run the program. In the second example where we set the value of sum to be zero in the variable declaration section, the location sum only gets zero put in it when the program is COMPILED! If we continue to run the program without compiling again, sum holds the same value when the next program starts as it did when the last program ended.

So when would you initialize a variable in the variable declaration section instead of the main program? I would suggest you only do it when you are planning to use that variable as a constant. That is, it's value will never change in the main program. Since BASIC does not use the concept of constants very often, let me explain a reason why you would use a constant and maybe initialize a variable's value in the variable declaration section.

Let's say you are writing a program to compute test averages for a classroom and the maximum number of students in a classroom is 30. You might initialize a variable max students to be 30 like so:

```
PROC main()
  BYTE max_students=[30]
  etc. etc.
```

And everywhere in your program where you would have had to type the number 30, you can just use the varaible max students instead. Why? Isn't typing 30 easier than typing max students? Well, maybe, but if the size of the classes ever changes or you want to adapt the program for somebody else to use, all you have to do is change that one little line we wrote above to be some new value. Otherwise, you would have to search through your entire program to find all the 30s and change them all to some new number. This is a case where you do a little extra typing in the beginning to make your life a whole lot easier down the road.

The last way to declare variables in ACTION! is a very powerful feature that makes ACTION! fun to use. In Atari or Turbo BASIC, when we invent some new variable, we let BASIC take care of exactly what memory location in your computer the variable will be stored at. In the first two ways in ACTION! we have just looked at, it works very much the same. ACTION! takes care of exactly what memory location will be used to store your variable. In the last way we are about to look at, we can tell ACTION! where to store our variable. Then any time we store a new number in that variable it acts just like we are POKEing that value into that memory location.

We tell ACTION! where to store our variable in this manner. Just like before, we have to tell it what type of variable we will be using and what it's name will be. In addition if we put an equals sign and some value after the name, the variable will be stored at that memory location.

FOR EXAMPLE:

```
  BYTE bordr=712, cursroff=752
  CARD dlist=561
```

This seems confusing. It looks very much like we are declaring some variables and then giving them values. Remember however, if we want to give them initial values, we have to use brackets. What the above example really says is "Declare two BYTE variables and store the first one in memory location 712 and store the second one at memory location 752. Then declare a CARD varaible called dlist and store it at locations 561 and 562" (A lot like TURBO BASICs DPOKE command.) Then you can do stuff like this:

LISTING 6:

```
PROC main()

  BYTE bordr=712, cursroff=752

  CARD dlist=561

  cursroff=1    ; turn the cursor off
  cursroff=0    ; turn it back on again
  bordr=14      ; turn the screen border white

RETURN
```

Note that unlike the first way of declaring variables where we have to give the variable a value in our program, or the second way where we have to give it a value in the variable declaration section, in this third way, the variable will have a value when your program begins. It will have the normal default value of that memory location. For example, above when your program starts, cursroff will have a zero stored in it. (Location 752s normal value.)

Now that you've digested all that, let's look at Listing Three again. First we declare two CARD variables, one called sum to hold the sum of the numbers and one called time to hold the number of jiffies it takes to run the program. I made them CARDs becuase I was not sure how big the numbers would be but I knew they would be less than 65,535. (Actually I knew time would really only need a BYTE but I made it a CARD instead) Notice that normally I would not have given sum the value of zero here in the declaration section since I change it's value. I simply did it this way so you could see all three ways of declaring a variable in this example program. On the next line we declare three BYTE variables; ctr to hold the loop counter, and t1 and t2 which we tell ACTION! we want to be stored at locations 19 and 20. These just happen to be the locations of the system timers.

On the first line of the statement section, we set t1 and t2 to be zero. This is the same as line 10 in both our BASIC examples because ACTION! stores those zeroes in locations 19 and 20. The rest of the ACTION! program should be very straightforward with the exception of the line that says sum==+ctr. This is the same as saying sum=sum+ctr. The == sign is just a shorthand way of saying take the current value of sum, add the value of ctr and stick it back in sum. So, a=a+1 could be a==+1 or hiscore=hiscore-500 could be written hiscore==-500.

I guess since I've probably taken up a good number of pages with this article, it's time to come to a close for this month. Next month we'll get into the actual statements in ACTION! so you can start writing programs on your own instead of typing in my dopey examples. In the future months, we will be writing (until I can think of something better) a program in ACTION! as an exercise on how to do various things. I was thinking of writing a report generator for Syn-File+, but am willing to listen to better suggestions.

1-2-3 FOR ENGINEERS

by Donald Forbes - JACG

When someone mentions "programming languages" your mind automatically jumps to BASIC or Pascal or C, or perhaps even to COBOL or Fortran.

But one of the most important "programming languages" in today's world is the SPREADSHEET: Lotus 1-2-3 with its predecessors (VisiCalc), and clones (TWIN) and successors (after one, two, three comes "Quattro," which is Italian for four).

The spreadsheet as a programming language has been around for a long time, even though few people think of a spreadsheet as such. And I have the proof right here in my hand. Our president emeritus Linda Peckham is back in Ottawa, Kansas (population 6,000, about 40 miles SW of Kansas City on I35 towards Emporia) to finish a Master's degree in Engineering.

For $6 in all she sold me her copies of (1) the $5.95 "The Most Popular Subroutines in BASIC" by Ken Tracton, (2) Jules H. Gilder's $9.95 "BASIC Computer Programs in Science and Engineering" and (3) Robert H. Flast's "54 VisiCalc Models: Finance, Statistics, Mathematics" copyright 1983 by Osborne/McGraw-Hill which probably sold for $15 at the time.

You are probably familiar with the 1981 book "Some Common BASIC Programs: Atari Edition" by Lon Poole, Mary Borchers and Steven Cook published by Osborne/McGraw-Hill. It turns out that the five-year-old VisiCalc book is just a rewrite (but in SPREADSHEET terms) of 23 standard financial applications (mathematics of finance, depreciation, amortization schedules, etc.), 16 common statistical applications (means, variance, deviations, distributions, regressions), and 15 standard mathematical applications (vectors, interpolation, derivatives, integration, matrix manipulations).

The VisiCalc program is not called a "program" (a dirty word) but a "template," which is acceptable in spreadsheet society. Here is the "Template" which calculates the future value of an investment:

```
     A         B         C         D
 1    FUTURE VALUE OF AN INVESTMENT
 2    ---------------------------------
 3   THIS TEMPLATE CALCULATES THE FUTURE
 4   VALUE OF AN INVESTMENT FOR A GIVEN

 5   RATE OF INTEREST.
 6   AFTER FINAL ENTRY, TYPE !
 7   INITIAL INVESTMENT      => ENTER #
 8   INTEREST RATE (XX.XXXX) => ENTER #
 9   NO. COMP. PERIODS/YEAR  => ENTER #
10   NUMBER OF YEARS         => ENTER #
11   ---------------------------------
12     TOTAL VALUE AFTER
13                  0   YEARS     NA
```

The way the template works is that in cell D13 you enter the formula to compute the future value, and lift the parameters from the entries in the cells D7, D8, D9 and D10 (which tell the user to "Enter a Number.") The formula happens to be:

```
@IF((+D10=0),@NA,+D7*(((1(D8/D9/100))^(D9*10)))
```

You enter the parameters ($6800, 9.5%, 4 periods) in D7, D8 and D9. Once you finish entering the number of years (10 years) in D10 the spreadsheet recalculates automatically, so that the last two lines then read:

```
12    TOTAL VALUE AFTER
13                10   YEARS   17389
```

which is the right answer.

VisiCalc and Twin (which I used) are not identical, but I had no trouble translating one set of commands to the other.

You may recall that the October 1985 issue of this newsletter carried an article under the title "Spreadsheets for the Mathematician," which was a review of a $17 165-page McGraw-Hill paperback called "Mathematical Applications of Electronic Spreadsheets" by professor Deane E. Arganbright of the Whitworth College department of math and computer science in Spokane WA.

That book featured a long list mathematics applications for spreadsheets: Fibonacci numbers, factorials, bisection algorithm, fixed-point algorithm, limits, differentiation, Newton's method, numerical integration, Taylor polynomials, differential equations, polynomial interpolation, matrix multiplication, Jacobi and Gauss-Seidel algorithm, dominant eigenvalue, eigenvalues and diagonalization, continued fractions, Euclid's GCD algorithm, binomial theorem, synthetic division, contour graphs, modular arithmetic, Russian peasant multiplication, statistics (mean, correlation, regression, confidence intervals), probability (Bayes' rule), algebra word problems, trigonometry, compound interest, personal finance model, simplex linear programming, game theory, matrix powers, systems of linear equations, and boundary-value problems.

Last month at B. Dalton's bookstore I came across the newest and best of the lot, a new book by William J. Orvis (Sybex, 1987, 341 pages, $25) entitled "1-2-3 for Scientists and Engineers." Orvis is an electrical engineer (with a background in physics and astronomy) at the University of California's Lawrence Livermore National Laboratory, with experience in the design and modeling of nuclear reactor instrumentation at the Idaho National Engineering Laboratory at Twin Falls.

The book aims to show how spreadsheets are good tools to solve the common numerical problems of science and engineering. The topics combine tables and graphs in two and three dimensions to (1) create data tables and function tables, (2) fit and plot curves, (3) do statistical calculations, (4) sum series, (5) perform differentiation and integration, (6) solve linear and nonlinear equations, (7) solve ordinary and partial differential equations in one and two dimensions, and (8) use database techniques to store and analyze experimental data.

Orvis points out that the reason he uses Lotus 1-2-3 is that it "is more than accurate enough for most engineering calculations, and it has all of the mathematical functions of a high-level language such as Fortran or BASIC." In other words, both the precision and the numeric range are satisfactory.

"The precision of a number in Lotus 1-2-3 is comparable to that of most mainframes and minicomputers. You can use up to 240 characters to type a number into a cell, but only 16 digits are maintained internally. The control panel displays only 10 digits, but you can see the extra digits by widening the column containing the cell and then formatting the cell as scientific, with 15 decimal places.

"My scientific calculator shows 10 digits and probably has one more internally for roundoff precision. A Cray 1 computer has about 15 digits of precision in its single-precision floating point numbers, and a VAX computer has only about 7 digits of precision in single-precision and 15 in double-precision floating-point numbers.

"Lotus 1-2-3 performs all of its calculations in single-precision arithmetic. If you need extra precision, you could split a number into an upper and lower part

and carry these along separately in your calculation, but this would be difficult because of the cross terms generated by many mathematical operations.

"Few people need this much precision. I have needed it only for celestial mechanics calculations (not using a spreadsheet). When you are integrating the orbit of an asteriod, small errors in calculating its position can add up to a large error after a few million orbits (you can place the asteriod on the wrong side of the sun)."

Orvis says the numeric range is also adequate. "In addition to precision, many science and engineering calculations involve numbers with large exponents. Lotus 1-2-3 allows you to enter numbers with exponents in the range from plus or minus 99, which encompasses most scientific and engineering numbers.

"Internally, Lotus 1-2-3 calculates exponents in the range from plus or minus 308 to prevent numeric overflow during intermediate calculations. If a cell contains a number between ten to the plus or minus 99th power and ten to the plus or minus 308th power, 1-2-3 will display a row of stars. However, the number will be maintained internally and can be referenced and used in calculations within another cell.

"My hand calculator also handles exponents up to plus or minus 99, and I have had numeric overflow a number of times (try taking the fourth power of the inverse of the electron rest mass). The extra size of the exponents in the internal variables will significantly reduce problems with intermediate variable overflow. If a number does overflow in a cell, Lotus 1-2-3 will mark that cell and all cells that depend on a value in that cell as bad (ERR). However, it is extremely unlikely that overflow will be a problem with Lotus 1-2-3...As you can see, the power of Lotus 1-2-3 is comparable to that of mainframes and minicomputers."

Chapter two covers more than half of the techniques in normal use, mostly putting simple numbers into relatively simple equations and calculating the results, leading to engineering tables and formula calculators. Function calculators calculate values for complex sets of equations so that you can model a complex system and then play "what if" games with the system parameters and see the results right away.

Graphics are covered in chapter three. Only X-Y plots are useful for engineers (the line plots, bar charts, stacked bar charts and pie charts are really business and administrative tools). You see how to create semi-log, log, and three-dimensional plots, and how to enhance the plots with simple drawings.

Macros are explained in chapter four. Originally they were combinations of commands and keystrokes that could be executed with a few keystrokes. Now they have evolved into a complete programming language that lets you do many calculations you could not do with a spreadsheet alone. Macros let you do loops, subroutines, jumps, conditional IF statements, assignment of values and labels, and file access.

The first problem, of course, is to get the data into the spreadsheet, either by (1) typing, or (2) retrieve it from disk from a text file and then separate it into the correct cells without retyping. Chapter four shows how to enter database data into the spreadsheet, and how to store it and retrieve it. Furthermore, he shows how to use the database management capability to analyze experimental data.

Curve fitting, or the common task of fitting an analytical equation to a set of data points, is explained in chapter six. There are three ways to perform curve fitting.

First, you can fit most equations to data with the built-in linear regression commands (if the data is nonlinear it can be transformed ahead of time). Second, you can fit more complex equations by manually adjusting the coefficients of the equation until the residual errors (differences between the data and the curve) are minimized, or the correlation coefficient is maximized. Thirdly, if the data does not fit any reasonable equation, use table look-up functions and interpolation to calculate their values.

Many important science and engineering functions are available only as series formulas: differential equations that do not have closed-form analytic solutions often have solutions in the form of series. To sum a series in a spreadsheet you have three choices. The simplest is to calculate the series term by term and add them together. The second method is more compact and flexible, and uses a macro. The third method shows you how to calculate the series by iterating the spreadsheet, where each iteration gives you one more term of the series.

Differentiation and integration (chapter eight) are usually performed on analytical equations. "However, if a function exists only as a set of discrete data points, then you must use numerical differencing and integration techniques to calculate the derivative and the integral...These techniques are easily applied to data in a spreadsheet. In a spreadsheet you can also see intermediate results, which can often be enlightening, or scary, as the case may be.

"Solving a nonlinear equation (chapter nine) is often a frustrating experience...The methods are all based on a

guessing a solution and systematically refining that guess...You repeat this process until you find a root of sufficient accuracy or until the method diverges and you give up and go home for the night, to try again the next morning.

"Many problems in science and engineering result in sets of equations that have to be solved simultaneously...Most problems that involve simultaneous equations result in sets of linear equations. This is lucky because linear equations are the most straightforward to solve. You can solve most of them with the Lotus 1-2-3 built-in matrix commands. These matrix commands can handle inversion and multiplication of matrices of up to 90 by 90 elements.

"Now comes the fun stuff (chapter eleven on ordinary differential equations). Most people do not think of a spreadsheet program when they have to solve a differential equation. However, a spreadsheet, with its dynamically linked cells and iterative capability, can do an excellent job...Initial-value problems can be solved using the Taylor series, the Euler and modified Euler, and the Runge-Kutta methods...Boundary-value problems can be solved using the shooting method, in which we pick values of the boundary condition on one side of problem and then see whether we get the correct result on the other side.

"In this last chapter (chapter eleven), we have looked at solving multidimensional time-dependent partial differential equations with a spreadsheet. Amazingly enough, this is actually rather easy to do.

"To those of you have worked your way to this point, welcome. You have reached the end of the last chapter. I hope that this material will be useful to you, and that you had as much fun working the examples as I did creating them."

How did the book get to be written?

"For many years, I have been giving 'hard' science presentations and papers at conferences and symposia. Last summer, I decided to do something different. Just for fun, I put together a paper on engineering with a spreadsheet. Dianne King and Rudy Langer of SYBEX found out about the paper and contacted me with an interesting offer: Would I like to write a book on this topic? I considered their proposition for about two seconds and accepted.

"That evening, my wife reminded me that we had a baby due about the time that I was supposed to deliver Chapter 5... When baby Sierra arrived it turned out that she liked to lie across my knees while I typed. The sound of the keys clicking apparently put her to sleep. So there I sat, madly typing away until the early hours of the morning, using a newborn baby in my lap for an arm rest."

THE CONVERTER

Programed by
Chris Wareham

Neil Van Oost - JACG

"The Converter" is a program which will convert "Print Shop" icons to clip art format, which can be used in Springboard's "Newsroom" program. It will also convert "Print Shop" icons to "Awardware" and "Printpower" formats, or "Awardware" to "Newsroom".

The program is available through "No Frills Software", 800 E. 23rd St., Kearney, NE 68847, Phone 306-234-6250. When I received my program, I had difficulties getting the program to work with my "Doubler" enhanced 1050 disk drives. I tried everything and finally in desperation fired off a cry for help to "No Frills". Within 10 days I received a reply. To make a long story short, I found that somewhere in that jungle of black snakes and add-on switches which enable me to switch drives between my 800 and 130 was a bad connection. Also "The Converter" will definitely not work with "my" 800. I have not tried it with an un-enhanced 800. You should have no problem with an XL or XE.

Since the primary reason that I bought "The Converter" was to convert some of the thousand or so PS graphics into "Newsroom" format, that is what I will talk about. Booting up is simple, just power-up with the program disk in drive 1 and in a little over half a minute the title screen appears. Converting PS to "Newsroom" clipart is simple. In most cases you can get at least three PS icons on a clipart page. Using the clip feature I managed to get six icons on a page without the pictures suffering to much by having part of a side or bottom deleted.

There is also an EDIT feature which allows you to modify or even make a new picture. To get the most icons on each "Newsroom" page the editor comes in handy. One of the things you should watch for is to try and leave just a little space when placing your icons on the clipart page. If you overlap just a little, you will carry a piece of that other icon when you load it into "Newsroom". Another thing to watch is go very slowly and try not to be too fast hitting that escape button. I did this several times and as a result was not able to fill up each page as much as I wanted. I found that once you make a mistake here there is no going back.

All in all this is a SUPER GREAT picture utility program to add to your "toolbox", especially if you are a picture

junkie like me. It is easy to use and the documentation is straight forward. And its only going to cost you $19.95 plus shipping and handling. My thanks to Chris Wareham of Sheperd Software and Ed Kielbasinski of No Frills Software for an excellent program.

Also available from "No Frills" is a rather extensive collection of Printshop icon disks at reasonable prices. "No Frills Software" advertises in both ANTIC and ANALOG.

TURBO ST

John H. Dean - JACG

The Atari ST comes equipped with TOS (The Operating System), and GEM (Graphics Environment Manager). If you have used the mouse and Desktop for more than a few minutes, you will know that GEM is intuitive, powerful, and easy to use. GEM is one of the principal reasons most users decide to buy an Atari ST.

But GEM was not written for the ST TOS. The routines in GEM that write characters to your screen, clear it, and scroll it, do not fully exploit the speed of the 68000 CPU. GEM isn't as fast as it could and should be. There are two ways to overcome this limitation. You can (1) add a special piece of hardware that takes over part of GEM's job, or (2) you can rewrite the slower parts of GEM with more efficient code. Atari's blitter chip represents method #1. Turbo ST represents method #2.

What this means is that Turbo ST can speed up most Atari programs that write text to your screen. For example, Data Manager ST displays new pages 81% faster, GFA BASIC 69% faster, and ST Writer 116% faster, when these programs are run with Turbo ST, according to the manual that accompanies the copyrighted program from Softrek. With few exceptions, Turbo ST does for programs running on your Atari 520 or 1040 what Atari's "blitter chip" does for programs running on a Mega ST -- but it usually does so even faster.

Turbo ST is installed as an accessory from your boot disk, either floppy or hard. You can then run your favorite programs just the way you always have -- there are no special instructions or complications. And once installed, should you ever wish to turn Turbo ST off, simply pull down the desk accessory menu on your Desktop, and click "REMOVE". Click on "INSTALL" to get it back.

The quickest and simplest way to test Turbo ST is to call up a list of file from the Desktop, and "Show as Text". Now, switch between "Sort by Name" and "Sort by Type" with Turbo ST switched OFF. Now do the same thing with Turbo ST switched ON. The increase in speed using Turbo ST is strikingly obvious, especially when the list of files is long.

Turbo ST unfortunately does not speed up all programs. Since it achieves its increase in speed by enhancing the performance of GEM and TOS, it cannot accelerate programs which, like pc-ditto, replace GEM with their own operating systems. Nor can it speed up programs which spend a great deal of time on operations other than text display, such as those which perform intensive math operations. Similar limitations, of course, apply to Atari's hardware blitter as well. Neither does Turbo St speed up most games, which typically bypass GEM and access the 68000 chip directly via assembly language.

There are a few limitations to using Turbo ST. It is recommended that ProCopy be used only when Turbo ST is turned off. Apparently, speeding up the sector write status display can throw off the internal timing of ProCopy when it it copying a disk. ST Writer with Turbo ST on a color monitor will produce a slightly compressed screen, since ST Writer directly changes the line spacing. And, when starting up GFA BASIC in low resolution, the hardware register that controls screen resolution is apparently changed directly. Since Turbo ST does not see this, the screen display is garbled. If GFA BASIC is started in medium or high resolution, it works fine.

The authors of Turbo ST point out that due to the way GDOS changes workstation handles, it is impossible to insure 100% reliable operation with GDOS installed. With G+PLUS from CodeHead Software (see article on G+PLUS) there should be 100% reliable operation.

Turbo ST is published by SofTrek, P.O. Box 5257, Winter Park, FL 32793.

Programming is by Wayne Buckholdt, and the manual was written by Dick Biow.

EXECUTIVE MEETING MINUTES

DECEMBER 3, 1988
MICHAEL D. HOCHMAN - Secretary -JACG

The meeting was called to order by the President at 10:30AM with Gary Gorski(President), John Dean(VP 16-bit), Dave Noyes(VP 8-bit and Newsletter Editor), Mike Hochman(Secretary and Membership Chairman) present and constituting a QUORUM.

The first item discussed was the financial standing of the club which was unofficially reported to be between $700 and $800. This was an estimate based on the previous treasurers report and discussions with Treasurer Jack Rutt who could not be present at the meeting.

So far no one has volunteered for the position of JACG Newsletter Editor, and Dave Noyes cannot handle both that and the function of 8-bit VP concurrently. We will all be looking for a likely candidate to encourage to take the job. A similar situation exists with the position of Advertising Manager for the Newsletter.

The new address for incoming club mail and Exchange Newsletters will be:

JACG C/O Gorski
P.O. BOX 5206
NEWARK, NJ
07105-0206

The new address for membership mail (new members and renewels) will be:

JACG C/O Mike Hochman
225 Madison Street
Lyndhurst, NJ
07071

The situation of 4 physical Executive members present at this meeting representing 5 logical Executive members was necessary to satisfy the quorum requirement established in the JACG Bylaws (Dave Noyes represented two elected Executives). This prompted the recommendation of review and possible ammendment of our Bylaws. The Secretary will be distributing a copy of the present Bylaws to all members at the January meeting for their comments and recommendations. Any changes and comments will be considered and voted upon at the February meeting.

June has been chosen as the monthly meeting for the popular ATARI Safari. This is the meeting where after some brief club business, we break up into small groups to view demos setup around the auditorium. We will be soliciting for volunteer demonstrators immediately.

There was a brief discussion on what demo's where planned for the upcoming meetings and if there was to be an expected shortage. The December meeting was totally booked with demo's, January is the Software for Kids meeting.

The meeting was adjourned at 12:00PM.

SIGHT-SEEING WITH FLIGHT SIMULATOR II AND SCENERY DISK #11 THE SEQUEL

Williamsport PA. to ???

Dave Arlington - JACG

OK, it's very early in the morning so let's get started right away. Boot up your FSII disk and log in Scenery Disk #11. (By the way, here's a short-cut that only works on the Atari 8-bit version. Boot up the main FSII disk. When it comes to the screen that asks you what monitor type you are using, remove the main FSII disk and insert the Scenery Disk. Then answer the two questions. The rest of the program loads AND logs in the Scenery Disk automatically. This works with any Scenery disk, even the one that comes with the original disk.)

Hit ESC to get to the edit screen and just change only these parameters:

MODE: 110 (changes to 10 after you press return)
NORTH: 17188
EAST : 20129
ALTITUDE: 0
HEADING: 260
HOUR: 6 (See, I told you it was early!)
MINUTES: 20

Now hit Control-S to save this mode and press ESC to exit. If your heading is not within a degree or two of 260, hit Control-= to fix it up. Once you're all set, hit P to pause for a minute. We only have ten minutes of this pre-dawn sky before the sun rises and I want you to spend most of those 10 minutes in the air, so hit Pause.

I'l explain where and why we're here in just a moment. First, I want to explain about the previous article I wrote about flying around Buffalo, Toronto, and Niagara Falls. At the time I wrote that article, I was a Buffalo resident. Now I have moved to the fine state of New Jersey, but thought the article was still worth printing. It does seem a touch ironic that only a few months after finally getting a scenery disk that covered my home area, that I end up moving to another state where I will have to wait again. Scenery Disk #7 covers southern New Jersey, but I guess I'll have to wait for Scenery Disk #12 to fly over scenic northern New Jersey.

Anyway, while you sip your coffee in the cockpit and try to stay awake, I'll explain why we're here in Williamsport, Pennsylvania so early in the morning. When I first flew this flight we're going on this morning, I was looking for a special place that turns out not to be there. However, I also saw some fun things that I was not expecting to be there, so you'll see it's worth the trip anyway. Of course, you'll be flying this time instead of me. I'll just be watching in the next seat. Now, unpause, and go into radar mode. Zoom up just high enough to get all of that white pentagon out there on the screen. Then quickly hit pause again to freeze time.

That white pentagon you see is the town of Williamsport. The reason we are here at 6:20 AM is because Williamsport is another one of those 'twilight' towns like Buffalo, N.Y. Due to strange coloring decisions on SubLogic's part, certain cities only show up at either night, dawn, or dusk. In another ten minutes, as you'll see when we get flying, Williamsport will disappear under the bright morning sun.

You'll also see a river and a highway cut through town. The river is the west branch of the Susquehanna which winds its way through Pennsylvania and Maryland to eventually dump into the Chesapeake Bay. If you notice, the river seems to end rather abruptly behind our plane. That's becuase we're right on the edge of this scenery disk. The Susquehanna can be picked up again further south on this disk in Harrisburg. The highway you see is Route 180, a spur off of the same Interstate 80 that is so familiar to me in New Jersey already. We'll actually see 80 running into 180 from the left side after we get flying.

The plan is this; we're facing almost due west. We'll take straight off on that runway ahead, pass over Williamsport and then pick up the river and follow it. A few minutes past Williamsport, daylight will hit and the fun starts. Go ahead and take off now. Use the step by step instructions from my previous article to get off the ground. (If you don't have the previous article, pick up a back issue of the newsletter!) We're going to fly at about 2700-2800 feet above sea level just like last time. The plane (Atari 8-bit version anyway) will fly straight and level at that height for long periods of time with minor adjustments of power.

So unpause and go ahead and take off. That wasn't so hard now, was it? OK, you're on your own until daylight comes.

Now that daylight's here, it sure seems bright doesn't it? You should now see or very soon will see a big black patch on the ground to the left of the river and the highway. (Oh, by the way, try and keep generally over the river. It's a good way to practice little turns to keep on a heading you want.) Let's see now, if those black patches aren't cities in this scenery disk, what are they? Mountains are black, but those don't look very high.

It turns out those are mountains, or perhaps I should say hills, because the mountains aren't very high around here compared to the ones, let's say, in the Denver scenery disk. But while they are not very high, there sure are a lot of them around here. In the course of the 45 minutes or so we will be in the air, you'll see mountains pop up here and there all over the place as you get close to them. A little later, we'll get real close to a couple and you will see these mountains do indeed have some height to them.

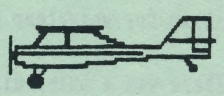
Right now, I want to point out the spot where I was looking for some important little sight that turns out not to be simulated in this disk, and I think it is a shame. Right up ahead you should notice the river takes a very distinct bend up towards the north right about the same time the highway seems to 'slide' across the river from the north side to the south side to meet up with Route 80. On the south side of the river right at the bend is a little unsimulated Pennsylvania town that should be near and dear to all 8-bit pilots.

The little town is Lock Haven, Pennsylvania and there is even an unsimulated airstrip there. I even flew over this area at night to see if Lock Haven was a 'twilight' town like Williamsport. Alas, it is not. Why should this town be special to 8-bit pilots? Well, Lock Haven is the home of the Piper Aircraft Company. If you were not aware, us fellow 8-bit pilots are all flying Piper Cherokee Archer II PA-28-181s. (Quite a long name for a little plane.) Those snobbish IBM, Macintosh, ST, and Amiga owners are all flying Cessnas. The main difference in the planes as far as the flight simulator programs go is that when Cessna pilots look out the side windows, they get an unobstructed view due to the fact the Cessna's wings are mounted on top, rather than on the side like ours are.

That's why I was a little disappointed not to see Lock Haven. The plane I have been flying so much lately was built right down there in an unsimulated factory in an unsimulated town and probably test flown at the unsimulated airstrip. Some day I'll land here on the grass just for the heck of it.

Now for some real sights though. When the river and highway part ways, turn and follow the river to the north. Pretty soon, you'll see a mountain begin to take shape on the left side of the river. As you follow the river along, the mountain begins to look more and more mountainous. When you get to the mountain, the idea is to pass it, and then turn west and fly alongside the north side of the mountain.

CONTINUED NEXT MONTH...



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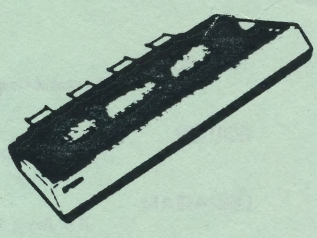

Low Overhead = Low Prices

- MEGA ST's
- 520 ST color or mono
- 1040 ST color or mono
- ALL EPSON Printers
- ST Software
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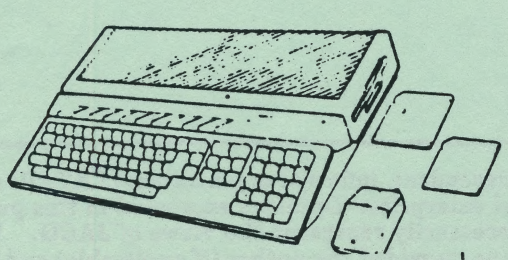

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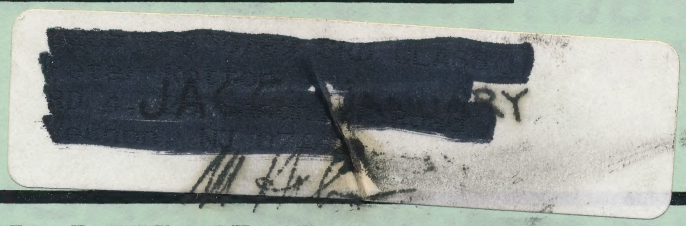

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JANUARY 1989

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